

**What Makes Us Eat:
Emotionally and Physically
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Though this article is intended to assist us in helping our clients, it may inadvertently address some of our own issues in the process.

The basic process of hunger can be likened to a traffic light: Green means start eating, yellow cautions that you're nearing the fullness point, and red means stop.

Our physiology is actually designed to give us the green, yellow or red light, which could theoretically end the whole calorie-counting business in favor of simply eating according to physical hunger and fullness. Unfortunately, the practice isn't that simple. For one thing, distractions get in the way of physical sensations. Though our body says "green light," we might be stuck in a meeting or an hour away from dinner. And the red lights? We often run those altogether, eating way beyond the point of fullness, or munching when we aren't really hungry.

Would we be better off obeying physical signals rather than continually overriding them? Do those signals truly indicate what, when and how much we should be eating? Is our craving for sweets at the end of a meal psychological or physical?

Stop and Go Signals

Mechanisms that control learning behavior fall into two very broad categories: "stop" signals and "go" signals. Hunger and appetite are the big "go" signals; satiation and satiety

are the main “stop” signals. Using the analogy again, here's a primer on the way it works.

Green:

Hunger is a primarily physical sensation that drives a need to eat. Hunger signals can include a grumbling stomach or difficulty concentrating.

Appetite is primarily a learned psychological desire to eat, such as a craving that can occur with or without hunger. When you're already full from a meal, appetite comes into play when the dessert cart rolls around.

Yellow:

As you eat, a variety of physical indicators tell your brain when you've had enough. Nerve receptors in the stomach and hormones throughout the body are activated, as well as the satiety centers of the hypothalamus in the brain.

Red:

Satiation means you're full from the current meal and it's time to stop eating. Some foods (like protein) are more satiating than others (like fats).

Satiety is how long you'll stay full. In other words - how long the light will stay red before turning green again. Many factors affect satiety.

Many hormones and physical mechanisms trigger hunger and satiety. For example, low blood glucose and the hormone called neuropeptide Y (NPY) are thought to stimulate hunger. Conversely, hormones such as serotonin and cholecystinin (CCK) and many nutrients in the blood contribute to satiety. Despite the laundry list of physiological hunger and satiety triggers, appetite is what most often determines how much we eat.

Hunger Scales Have Pros and Cons

Some nutrition experts believe one answer to weight management lies in letting internal hunger and satiety cues rather than external appetite cues determine what we eat. A hunger scale is often recommended to "reconnect" someone with his or her body's natural hunger and satiety cues.

The first step is becoming familiar with how your body communicates. When was the last time you felt something vaguely called hunger touch the parts of the body where you identified those feelings? Then think, when was the last time you felt some fullness? Where did those thoughts or feelings come from?

After you have the basics down, start looking at the 0-10 gradations, with 0 being extremely hungry and 10 being Thanksgiving-dinner full. Keeping a journal of when, what and why you eat is one way to start filling in the scale.

For example, if you're at a 2, you may feel like you can't focus on anything but the thought of food, and you may generally feel confused and irritated. At an 8 you may feel uncomfortable pressure in your stomach and wish you had stopped eating sooner.

Continuing with the stoplight analogy, you might have a green light to eat between 1-4, a yellow from 5-7 and a red light at 8.

Though the scale can help you reconnect with your physical sensations, you wouldn't want to base your entire diet upon it. There's so much more to hunger ... even though you might be physically full, you may still want more or want something sweet at the end of the meal. Physical signals could theoretically regulate how much you should be eating, but in practice it's simply unrealistic.

Don't obsess trying to give an exact number; just use it as a guide.

Fullness Factors

Does eating a large bowl of soup or guzzling water really trick your hunger into going away?

Factors commonly thought to influence hunger and satiation include:

Weight of the food/beverage

Fiber content

Total calories

Bulk of food

The speed of eating/drinking

Having a protein, carbohydrate and/or fat in a meal

Calories may be the bottom line in achieving satiation, rather than any of the factors listed above. Researchers compared hunger ratings after subjects had consumed a variety of foods at different times. Study co-author Rick Mattes, PhD. MPH, RD. Professor of Foods and Nutrition at Purdue University (West Lafayette, Indiana), explains that hunger ratings were lowest after subjects consumed 500-calorie food portions such as chocolate and peanuts, compared to equal-weight or volume portions of low-calorie foods.

And the bowl of soup or glass of water technique? These are not effective cues to satiation, says Mattes. If you haven't had enough calories, your hunger will return quickly.

The Force of Culture

Before we get too far into the physical effects of different foods, it's important to focus on the massive impact that culture has on food intake. Over the past few decades in the United States, notable cultural changes have occurred:

1. Beverages contribute an increasing number of calories
2. Portion sizes have increased
3. Lifestyle activity has decreased

Such factors increase our calorie intake and decrease calorie expenditure. Because of subtle changes in our diet, we're now eating a mix of foods that exert a weaker effect on our satiety mechanisms so we passively over consume on a chronic basis. A diet high in fat, low in fiber and high in fluid calories rather than solid calories does not provide effective cues to regulate hunger and satiety. That means we will eat more without realizing it.

Social factors can also override physical hunger: office birthday parties, champagne toasts, family dinners, holiday gatherings -- all such occasions revolve around eating and/or drinking, and it is hard to abstain from that social pressure.

You can also tack emotional eating onto the list of outside forces affecting our food intake. You may mistake boredom or frustration for hunger, or associate a happy time with sweet food. If you grew up in an environment in which dinner was always followed by dessert, for example, you may not feel like a meal is finished until you eat something sweet. Are such cravings surmountable?

Some researchers suggest that a lack of the hormone serotonin may drive an actual physical need for carbohydrates. Evident human appetites for sugar [a carbohydrate] and fat have led to suggestions that macronutrient consumption is directly mediated by the central nervous system and human preferences for sugar and fat. The problem is that cravings actually revolve around specific foods rather than carbohydrate or fat. For example, someone might crave a cookie but not a baked potato, even though the potato is much higher in carbohydrate.

These food-preference data provide no evidence that selective 'cravings' for carbohydrate-rich foods are a characteristic feature of human obesity. People select and consume foods rather than macronutrients and individual food preferences are determined by a range of metabolic and behavioral variables. Hence, we cannot blame those late-night cookie cravings on our physiology.

Form Matters

Amid volumes of contradictory research on hunger and appetite, one important factor is currently emerging. The form of a food -- solid, semi-solid or liquid -- may greatly influence satiety signals. In particular, liquid calories do not register like solid calories do. The contribution of energy from beverages is ballooning. Specialty teas and coffees, fruit juices, sports drinks, sodas, and just about every beverage category. Therefore liquid diet drinks are not necessarily a good choice.

The problem is that liquid calories don't trigger satiation cues. If you have a cola with lunch, you aren't going to automatically eat less of your sandwich because of the calories in the soda.

In studies giving subjects extra calories in the form of either solid food or liquid, Mattes explains that consuming the solid food results in a spontaneous adjustment for the calories. That is, subjects ate less later on to compensate for most of the extra solid-food calories. There was no such compensation for fluid calories. Some fluids lean more toward semi-solids, such as a fruit smoothie or milkshake, and this is more of a gray area with respect to diet and appetite regulation.

What does this mean for your morning Frappuccino or lunchtime lemonade? If you choose to have fluid calories, realize that you'll have to be extra-attentive to your diet to compensate for them.

One element of confusion is thinking that if your stomach is full, you're no longer hungry. This leads to the practice of filling up the stomach with water, broth soups or low-calorie, high-volume foods like popcorn or rice cakes. To tame your hunger and control your eating, you must understand that many factors make the body "turn off hunger," including nutrient receptors in the intestinal tract, nutrients in blood, various hormones and stomach distension.

Hunger alone is not an effective weight-management tool, but it does play an important role. Ever tried to stick to a diet that made you hungry? Odds are it left you irritable and unsatisfied, which doesn't make success very likely. Here are a few practical suggestions on incorporating physical hunger/satiety mechanisms in a weight-management program.

Develop and become familiar with your own hunger scale, but realize the huge potential culture has to override those signals.

If you're dieting, include some protein in your meals to help stave off hunger.

Include appetite and hunger in food selection. For example, if you know a meal isn't complete without a small sweet, don't make yourself miserable by denying yourself, especially if it will lead to overeating later.

Consume enough calories during the day.

Some people report that they're "good" all day but then lose control at night. Good usually translates to eating birdlike quantities of food that don't come close to satisfying hunger.

Monitor liquid calorie consumption.

Give your body the cues it needs to regulate hunger, such as eating solid foods that are high in fiber and adequate in calories.

Try the old trick of eating slowly and putting your fork down between bites -- not to fool your body but to give it time to register what's in the pipeline.

Pay attention to portion size, since research indicates that we often eat more if we're served more.

There are certainly days I am hungrier than others for no apparent reason. There is a definite emotional component to eating but there is also a very real biological basis for overeating.

We can be alert to the "why" of our problem with emotional eating, then we will be better equipped to deal with the "how" of fixing it. Emotional eating is the practice of consuming large quantities of food -- usually comfort or junk foods -- in response to feelings instead of hunger. Some of the common emotional eating cues are:

Anger:

Whether you are angry at yourself, another person or a situation, you stifle your feelings using food rather than confronting them and releasing them. It's easier to smother a problem than to deal with it.

Hopelessness:

You think: Nothing really matters anyway. Nothing's ever going to change or get better for me. So, why should I care about my health or weight? Besides, eating makes me feel better. (Although most of us know, it's important to stress that extreme feelings of hopelessness are typical of chronic depression.)

Lack of Control:

You think: My life is out of control. There is nothing in it that I am in charge of. Everyone and everything around me rules

my life. Except for eating... I can eat whatever I want, whenever I want it. So I will.

Feeling Unappreciated:

Perhaps you've accomplished something exceptional at work and no one has noticed. Or maybe you've made a personal achievement you'd dreamed of for years, but no one at home shares your pride. You find yourself tempted to congratulate yourself by "treating" yourself to a binge.

Boredom:

There's nothing to do. Nowhere to go. Perhaps you feel lonely, too. There's nothing at home to occupy your mind or your hours. But there is a pantry full of comfort food that will kill some of that empty time.

If you fit into any one of these five profiles, try sitting down with a piece of paper in an effort to understand and find alternative behaviors to eating. You may be surprised at the solutions you come up with... and at just how well they work once you try them. Then, write your ideas on note cards and post them where you will see them in your moment of need - such as on the refrigerator door or next to the pantry.

Biological Factors

The study of food, appetite, and neurotransmitters is still in its infancy in research goes. But many strong connections between what we eat and the effects of different foods on our mood have emerged. Serotonin, endorphins, and dopamine are three neurotransmitters in the brain that have a strong connection to the foods you eat, your cravings, and your mood. Let's discuss each of them, their functions, and the foods that can alter their production.

Serotonin:

Serotonin is probably the most heavily researched appetite regulating neurotransmitter.

What it does:

Serotonin is a neurotransmitter, which, when released, brings about feelings of calm, happiness, peace, and satisfaction. Sufficient amounts of circulating serotonin also signal feelings of fullness and reduced appetite. For example, the weight loss drugs Redux and Fenfluramine (you are likely aware this is the fen part of phen-fen) enhance circulation of serotonin in the brain in order to create greater and longer feelings of fullness. Low levels of serotonin are linked with depression and increased appetite. Many anti-depressants, as you likely know, work by increasing availability of circulating serotonin in the brain. Serotonin, in short, is a very powerful mood enhancer and appetite regulator.

Dietary influences on serotonin:

It is probably no coincidence that when you are stressed or unhappy you might turn to sweets, baked goods, desserts, and other sugary carbohydrates to help you out.

Carbohydrate rich foods increase brain concentrations of the amino acid tryptophan, which is the building block for serotonin. Therefore, eating carbohydrates can often lead to feelings of calmness, peace, and satisfaction by enhancing the production of serotonin in the brain. Instant stress relief!

However, eating sugary carbohydrates, instead of complex carbohydrates, can actually have a rebound effect. You might feel good immediately after eating them because they lead to an instant high and an energy boost. But, shortly after that, your insulin levels and energy level drop, which can actually cause a rebound depression, or "sugar low."

This can, in turn, stimulate more sugary carbohydrate cravings to get back to the initial "sugar high." It is a truly vicious cycle. And of course, eating does not really combat stress in a long-term or effective way. Chances are, if you overeat, you often feel more guilty than relaxed.

Endorphins. What they do:

Endorphins are very powerful natural opiates in the brain that produce feelings of intense pleasure. They can also reduce and relieve pain. You might have heard the term "runner's high." This has to do with the release of feel-good endorphins after a long run or exercise session.

Dietary influences on endorphins:

Some research postulates that sugar/fat combinations can lead to enhanced production of blues-busting endorphins. You might crave foods, such as chocolate, precisely because of its high fat/high sugar content. Chocolate also contains phenylethylamine, an endorphin releasing substance. But, any food with a high sugar and fat content such as doughnuts, baked goods, ice cream, and others can increase endorphin and serotonin levels. That is quite an irresistible combination, especially when you feel unhappy or stressed and seek a quick "high" or mood lift.

Dopamine:

Dopamine is a neurotransmitter that can cause increased mental alertness and awareness. Some research suggests that a high-protein diet can enhance dopamine production. However, a high protein diet can suppress serotonin levels, which might lead to decreased feelings of calmness and relaxation.

Cravings, Overeating & Emotions - The Brain Chemistry Connection

Interestingly, events occur every day that can cause significant changes and shifts in the brain chemicals previously mentioned. Many of these moods, emotions, and biological occurrences affect our cravings for foods.

The brain seeks balance. It does not want to feel stressed, unhappy or guilty. It immediately looks for pleasure and balance from the things that we have trained it to seek when negative emotions and stressors surface. Oftentimes we are not even aware of our emotions or stressors, or that we are eating in response to moods and emotions until we make a habit of becoming very aware of how we really feel.

Some everyday factors that can affect brain chemistry and cravings:

Stress, fear, anger, and anxiety can increase a transmitter called neuropeptide Y. This neurotransmitter can significantly increase carbohydrate cravings.

Stress is also associated with low serotonin levels, which can also lead to carbohydrate cravings to boost serotonin.

Depression and sadness are associated with suppressed serotonin levels. Feeling down can affect our desire for carbohydrates to boost these levels.

Feelings of guilt and low self-esteem have a strong connection to increased cravings. Low self-esteem is associated with low serotonin levels.

Non-emotional factors related to depressed serotonin levels:

PMS - When estrogen levels drop and progesterone levels increase, as we likely know is the case with PMS, serotonin levels can drop. Therefore, there is a true biological reason

behind chocolate and related food cravings during this time of the month.

Seasonal Affective Disorder - The amount of light you are exposed to each day affects serotonin levels. Those who live in areas that have little daylight often report increased feelings of depression and increased cravings for carbohydrates. Many people also report these feelings during the winter months and weight gain when there is less daylight. Lack of exposure to light can depress serotonin levels.

High protein diets – As stated, excessive protein in the diet suppresses serotonin levels. To stress, many people following high protein diets report a decreased ability to feel calm and relaxed and an increased craving for carbohydrates.

In short, during certain times of the year or month, or when we experience difficult emotions and stress, many go through the following cycle:

Stress, emotional swings (or other factor above)

Depressed serotonin levels

Brain seeks balance (wants to be calm)

Urge for high carbohydrate or high carbohydrate/high fat foods

Raised endorphins and serotonin

Feel sedated, relaxed and even "high"

Sugary foods lead to only a quick, temporary increase in energy. Eventually, blood sugar levels drop, energy drops and "sugar low" feelings set in.

More cravings for carbohydrates and fats to make you feel calm and relaxed again

Your brain also quickly learns this pattern. You have trained it to realize that when you have any multitude of feelings, like stress, depression, or anger, eating certain foods will help “numb” those feelings by releasing powerful mood altering neurotransmitters. It will continue to re-seek that which you have trained it to provide stress relief, and emotional relief.

Conquering Your Emotions and Stress Effectively - Without Overeating

Stress, the blues, fears, and guilt are a normal part of life. We can't fully rid ourselves of these unpleasant feelings, but we can learn to deal with them more effectively. Our objective reasoning can tell us that eating unhealthy foods isn't solving our stress or emotional problems. But, that line of thinking doesn't come in very handy when our brain is screaming, “Eat, eat, I want to be calm!”

However, just as you trained your brain that eating certain foods can lead to greater feelings of calm and relaxation (albeit temporarily), you can instead train it to seek other sources of pleasure that also increase these mood-enhancing neurotransmitters. Unlike overeating, these alternative sources of pleasure will lead to a healthier lifestyle as well.

Some people can simply recognize the problem and decide not to eat, that is, to ride out the urge. But, for many, that is only a temporary and usually, not an effective long-term solution. Your brain will continually prompt you to find something to give it balance and pleasure when facing stressful and emotional situations. It is difficult to ignore these urges consistently. But, what you can do is replace one pleasure (eating) with another pleasure to effectively

satisfy your urges.

It can take some time, but eventually, you might begin to crave that long run to increase your endorphins instead of a piece of chocolate cake. It's all a matter of retraining your brain.

Generally speaking, anything that brings you personal pleasure, inspiration, or a sense of well-being without harming your health is the thing you should act upon when food cravings and the drive to overeat sets in. In the following exercise, you'll learn more about what inspires you and makes you feel good. You might also consider the following things that may be helpful to you when your brain seeks pleasure and stress relief:

Exercise - yet another reason to do it. It increases endorphin levels and relieves stress. You'll feel inspired and good about yourself, and you'll naturally decrease your food cravings.

Massage - it may help relieve anxiety, depression and sleep problems.

Read biographies of people who inspire you - learn from their positive influences and behaviors.

Meditate - Repeat a positive word, phrase or prayer. It minimizes distracting, negative thoughts and relieves stress.

Use guided imagery - Go to your favorite place for 10-15 minutes with your eyes closed. It might be the mountains or the beach. Imagine everything you're seeing, hearing, smelling, and feeling.

Listen to relaxing music – studies have shown this can decrease the production of cortisol. Cortisol can lead to carbohydrate cravings. Music can also increase relaxation, relieve stress, and provide more clarity and vigor.

Take a bath with aromatherapy. Oils of citronella, eucalyptus, sage, lavender, and chamomile added to a bath can relax you.

Laugh - see a comedy show, or engage in activities that bring humor to your life. Seek ways to have more positive emotions in your life. Finding the positive always overrides the negative.

Get a pet and love it- studies show that pets add a sense of unconditional love to our lives and can reduce blood pressure and stress.

Find a passion - maybe it's photography, art, ceramics, or football. Find something that inspires you and commit to get out there and do it.

Buy flowers, plant flowers, or nurture a garden.

Journal your feelings or talk to someone you can trust.

Add more spirituality (perhaps finding your own form of spirituality) to your life or pray.

Get in touch with an old friend you used to enjoy.

Re-acquaint yourself with your spouse or children. Plan a fun group activity together and do it.

Sign up for a class you've always wanted to take.

Go through old photo albums and scrapbooks - recall happy times and make plans for new ventures.

Treat yourself to a gift, e.g., a book, a magazine, clothing, a manicure; something that's truly a treat - that you rarely "allow" yourself the pleasure of doing.

Take 10 minutes and visualize the way you will look, the way you'll feel, the way you'll act, the way your clothes will fit, and the way people will react to you after you achieve your healthy weight.

Help others - sometimes this is the best way to feel better about yourself – by helping others in need. Get involved in your community or a local organization that serves a purpose that's important to you.

Modify Your Eating Habits to Manage Your Cravings

Some people report decreased cravings and less drive to overeat when they modify their diet in the following ways: (You can try some of these techniques and see if any work for you as well as for your clients):

Eat breakfast to improve alertness, performance, and mood in an effort to start your day off right and avoid overeating at lunch or dinner.

Eat small snacks throughout the day instead of large meals.

Become familiar with your body's signals. Don't eat just because it's mealtime. Eat when you're hungry and stop when you're satisfied, not stuffed.

Have high protein foods and high carbohydrate foods together at meal times to keep blood sugar levels normalized.

Satisfy your carbohydrate cravings with complex carbohydrates like whole wheat bread, low fat crackers, low fat popcorn, whole grain cereals, beans, or whole grain pastas and brown rice. Your body absorbs complex carbohydrates more slowly than sugars and thus, they will bring you up and ease you down more gently.

Eat more high fiber foods to feel full longer and minimize hunger.

Eat a balanced diet. Do not significantly restrict fat or carbohydrates or go on a starvation diet. Your body requires all the nutrients a balanced diet provides to function optimally.

Limit or avoid alcohol in the diet since it is a CNS depressant. It may make you depressed, which in turn, might stimulate carbohydrate cravings to make you relaxed, and happier again.

Cravings are real. Despite such uncertainties, food cravings are a very real issue for many people, and there are a variety of different theories as to why this may be so. One interesting finding is that men and women seem to crave different foods. For example, a study which found that while the most frequently reported food cravings among women is chocolate, the most frequently craved food among men is pizza. In addition, many experts agree that women tend to experience food cravings more often than men do.

To clarify: Remember there are physiological reasons for that. The week, or so, before menses starts, the body actually uses more magnesium. When you're deficient in magnesium, you're going to crave chocolate and other sweets, too -- but it seems like women go more for the chocolate.

Food allergies: One potential explanation for food cravings is a food allergy. Sometimes, the body's way of adapting to something that offends it is by craving it, much the same way that people crave nicotine or alcohol; if they go off of that food to which they are allergic, they go through the same type of withdrawal. In response to eating the offensive food, a person may gain an excessive amount of water

weight in an effort to dilute the allergen. Very often, the foods that people tend to be allergic to are their "comfort foods," so it is difficult to let them go.

Mineral deficiencies: In addition to magnesium, deficiencies of the minerals zinc and chromium may contribute to food cravings too. If you find yourself craving carbohydrates, you may be deficient in zinc. Sugar cravings may indicate a chromium deficiency.

Some women don't take time to listen to and nourish their bodies all day, so when evening comes, food turns into a reward because they are over hungry. And when you're over hungry, it's very difficult to control your appetite.

And finally, if you are still at a loss at ridding yourself of an unhealthy food craving, try reading these words again and again:

1. Food has never solved my problems in the past, and it won't solve them now.
2. Food won't give me better coping skills or add harmony to my life. I have all the power I need to make healthy changes in my life. I have the power to find good solutions to the problems and stressors I face. I won't ever give that power to food.